



LWD MEMORY LOG

Resistivity Gamma Ray

Gamma Ray

Scale:	<div>Company: Noble Energy</div>					
	<div>Well: Wells Ranch AF07-645</div>					
	<div>Field: Weld County(Noble NAD 83 Grid)</div>					
Depth Reference:	<div>County: </div>		<div>Weld</div>		<div>Country: United States</div>	
Driller's Depth	<div>State: </div>		<div>Colorado</div>			
Status:	Surface Location:		Other Services:			
<div>Final Print</div>	Latitude:		040° 24' 53.856" N			
API No: 05-123-44250-00	Longitude:		104° 20' 18.096" W			
Job ID: 8645411	SEC:		8	TWN:	5N	RGE: 62W
Permanent Datum (P.D.):	Ground Level	Elevation:	4704.00 ft		Elev. KB: N/A	
Log Measured From:	Rig Floor	Above P.D.	30.00 ft		Elev. DF: 4734.00 ft Elev. GL: 4704.00 ft	
Dates	Interval Logged			Magnetic Field Reference		
Date From: 2017-07-07	Top: (ft)	1952.00	Azi Reference North:	Grid	Dip Angle: (deg)	67.14
Date To: 2017-07-10	Bottom: (ft)	5870.00	Total Magnetic Field Strength: (nT) 52291			
Spud Date: 2017-07-06	Mag to Reference North Correction: (deg) 7.13 E					
Borehole Record						
Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)
13.500	30.00	1952.00	9.625	36.00	30.00	1940.00
8.500	1952.00	16015.00				
Mud Record						
Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Inc Az (Start)	Inc Az (End)
Oil Based Mud	1952.00	16015.00	8.500	14063.00	0.53 283.48	90.52 271.75
Acquisition System						
Baker Hughes Cadence	Software Version RTA.1			Rig: H&P 517		
Plot Studio	4.1.7763.3			Contractor: Helmerich & Payne Drilling Co		
				District: RMA Unit: D&E		

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Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	8.500	PDC	3.00	AutoTrak Curve	1952.00	5870.00	1952.00	16015.00	2017-07-08 02:58	2017-07-10 11:53	52.52

Crew

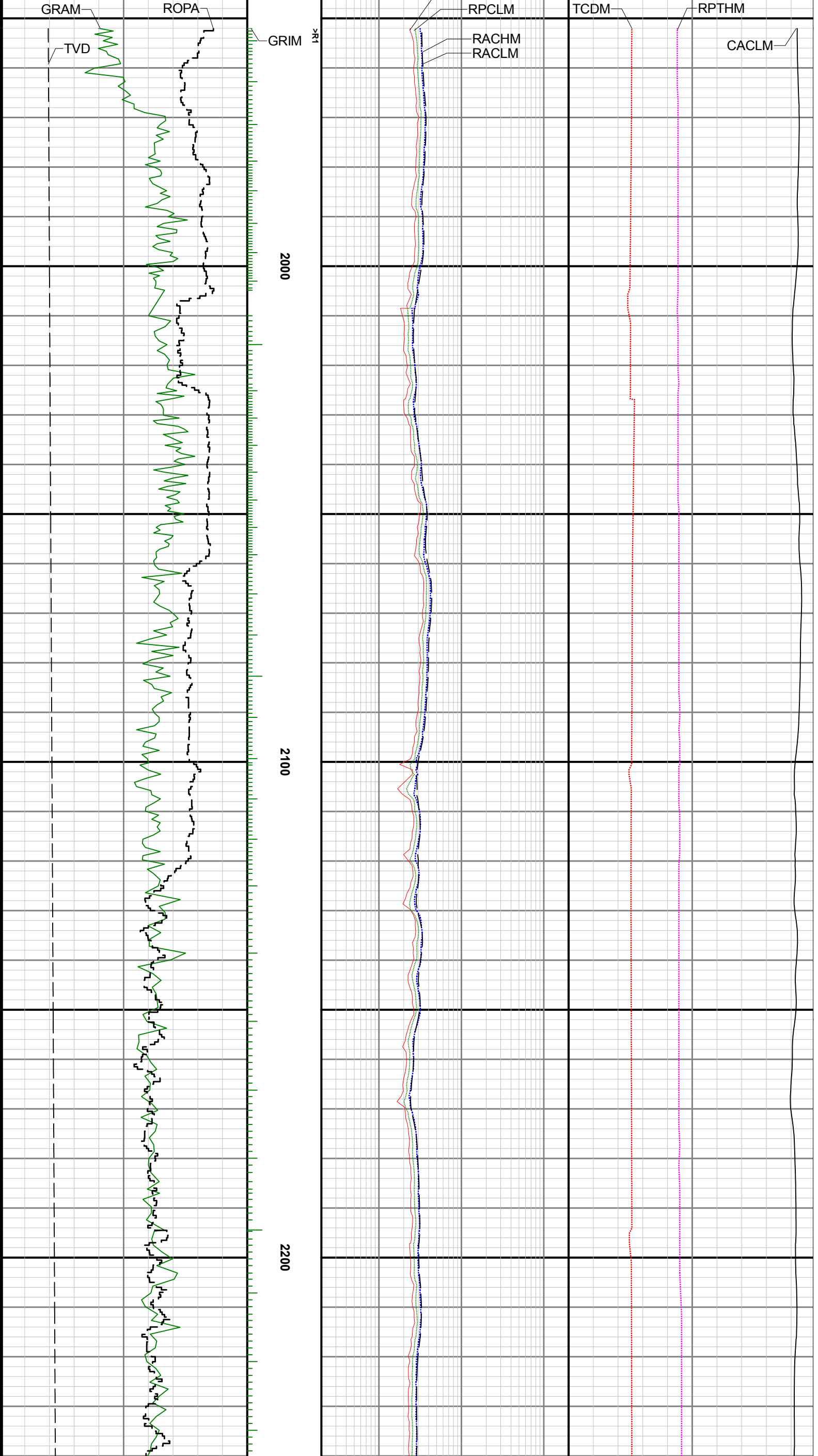
Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Alberto Cova	2017-07-06	2017-07-10	Emi Iyalla	2017-07-06	2017-07-10			

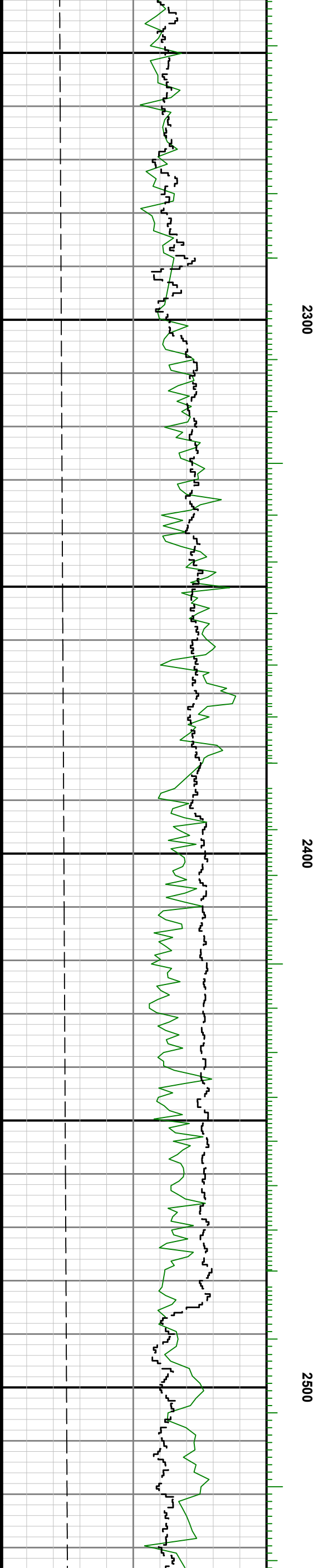
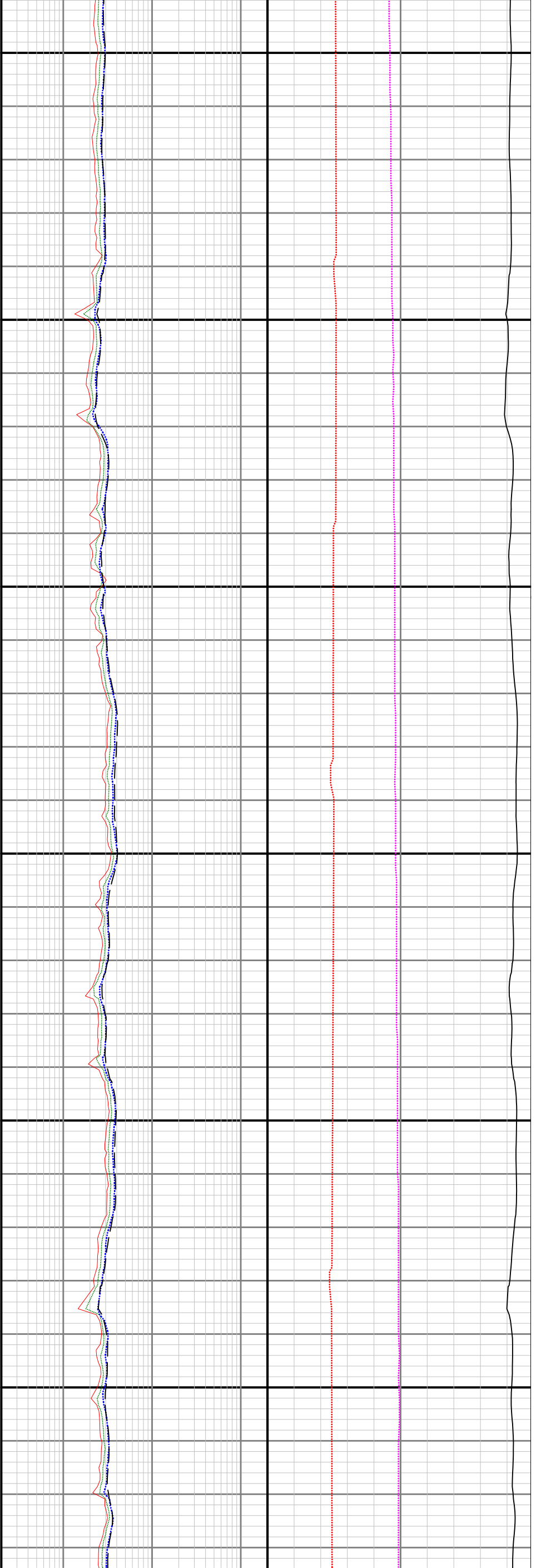
Mud Properties Record

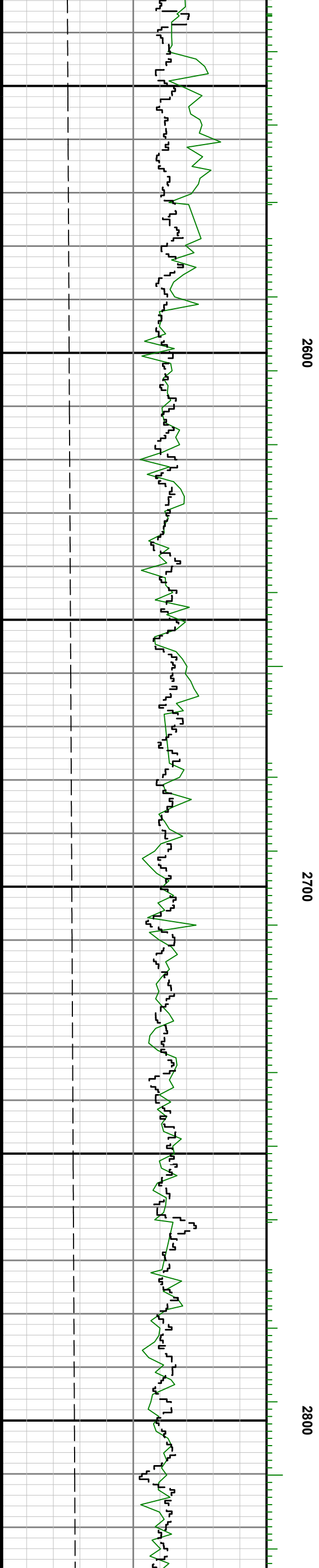
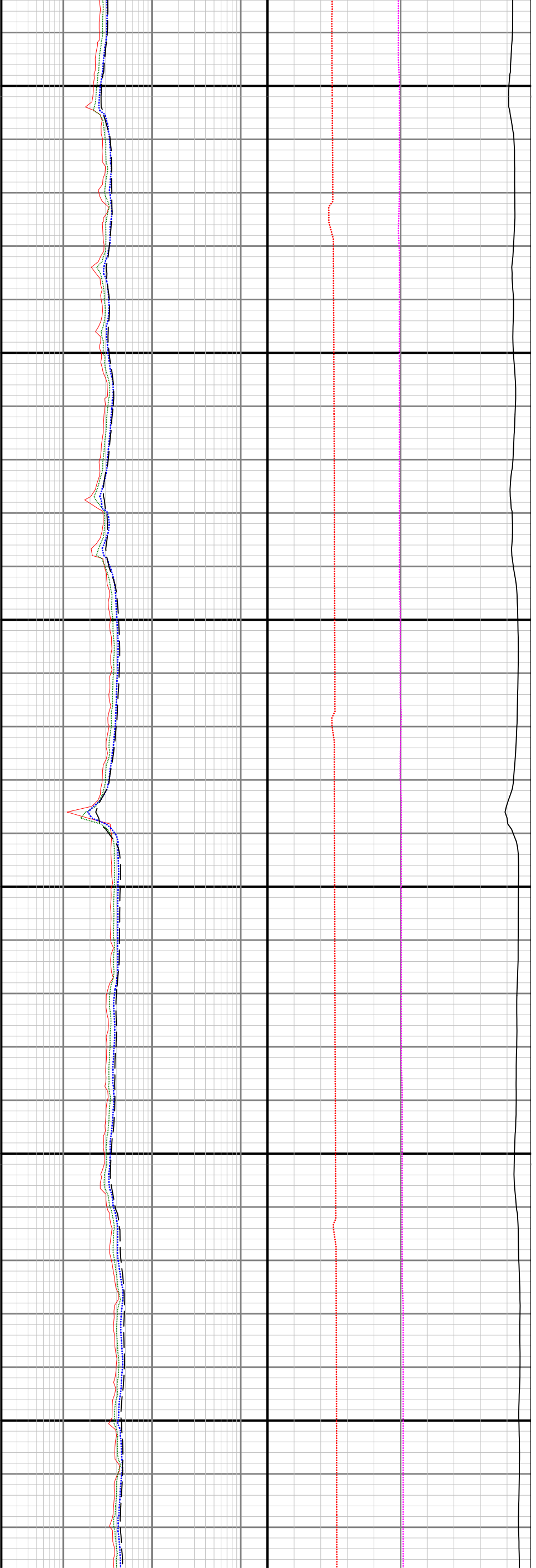
Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2017-07-08 04:00	1	2133.00	Oil Based Mud	9.2	11	N/A	435.6	82/18	Active Pit	19500	0.00
2017-07-08 15:00	1	5510.00	Oil Based Mud	9.1	9	N/A	120.7	84/16	Active Pit	20500	0.00
2017-07-09 04:00	1	8563.00	Oil Based Mud	9.1	11	N/A	68.1	83/17	Active Pit	21000	0.00
2017-07-09 15:00	1	11111.00	Oil Based Mud	9.1	11	N/A	54.1	83/17	Active Pit	21000	0.00
2017-07-10 04:00	1	13779.00	Oil Based Mud	9.4	15	N/A	167.7	84/16	Active Pit	20500	0.00
2017-07-10 15:00	1	16015.00	Oil Based Mud	9.5	16	N/A	149.5	84/16	Active Pit	19500	0.00

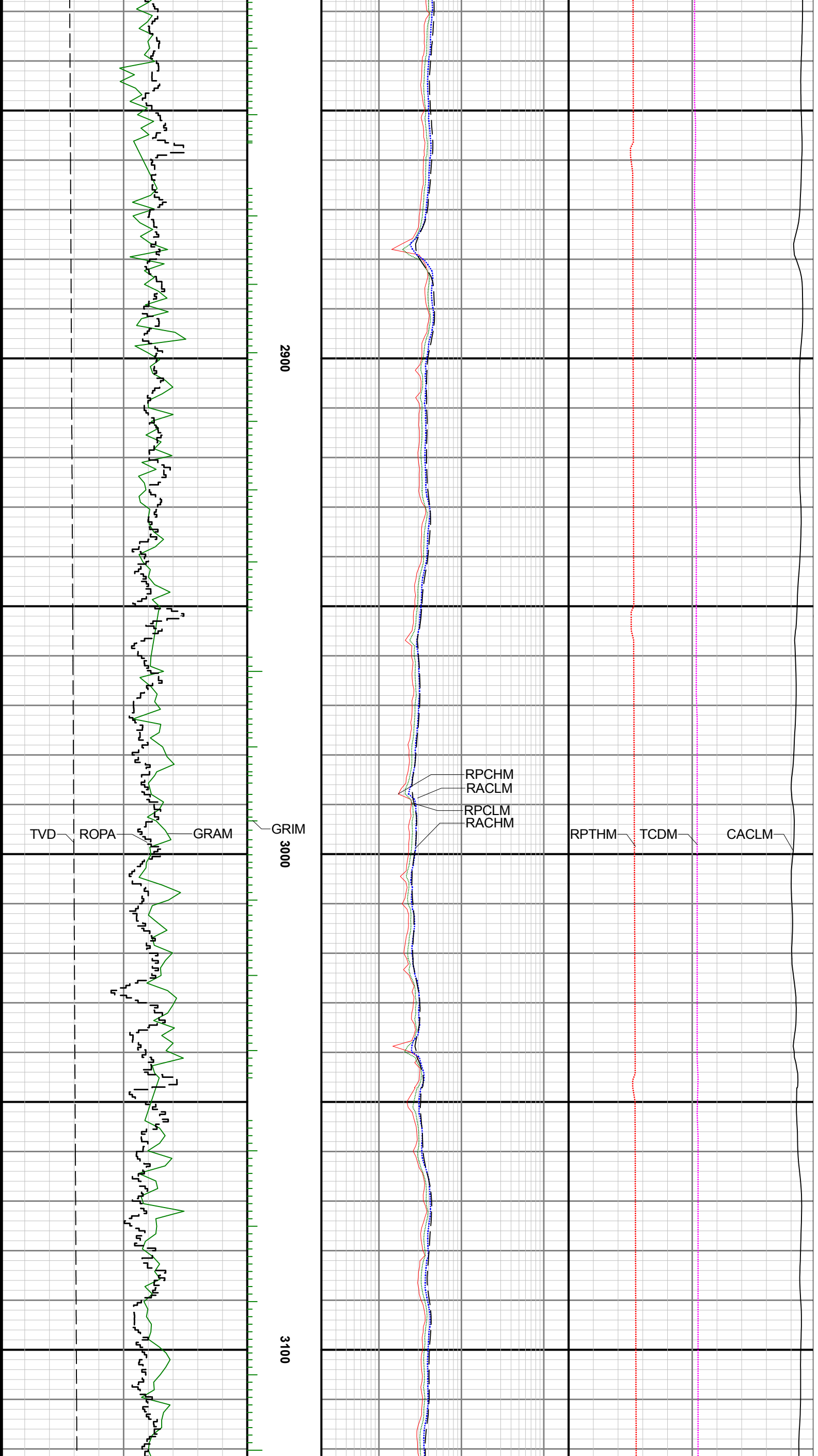
Mud Resistivity Record

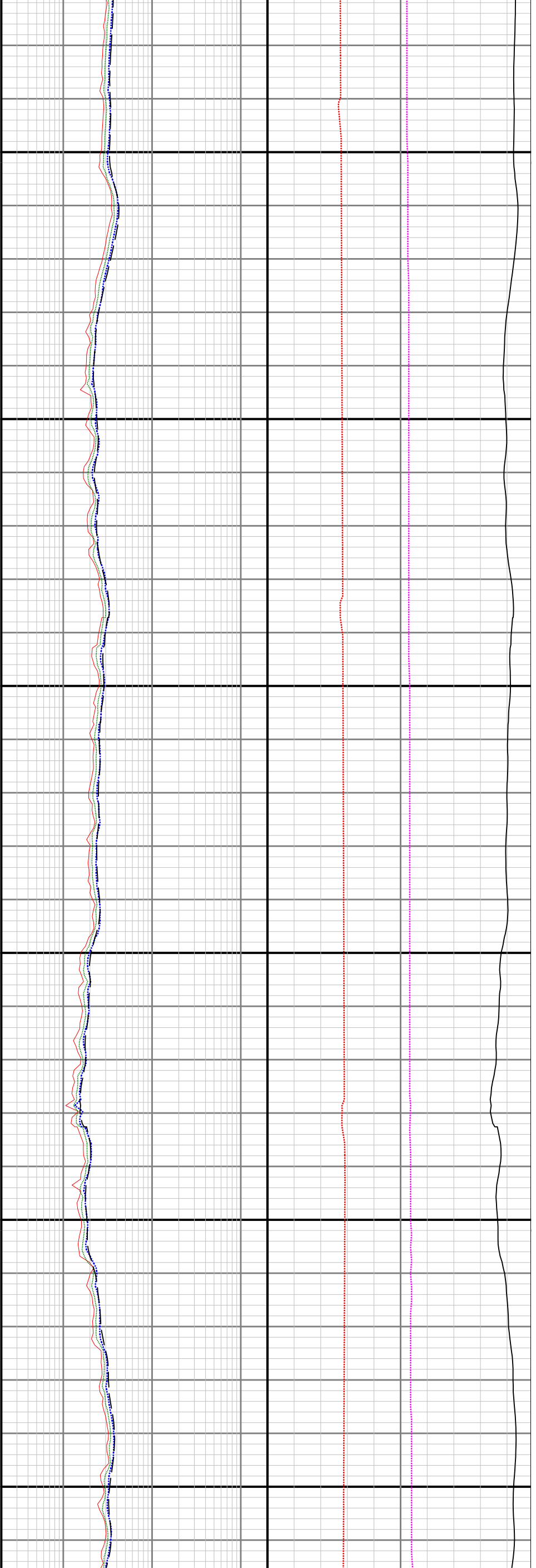
Date / Time	Run No.	Measured Depth (ft)	Surface Temp (degF)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (degF)	Rm @ BHCT (ohm.m)	Rmf @ BHCT (ohm.m)	Rmc @ BHCT (ohm.m)
2017-07-09 15:00	1	11111.00	127.0	100.000	N/A	N/A	231.0	100.000	N/A	N/A
2017-07-10 01:00	2	12555.00	121.0	100.000	N/A	N/A	230.0	100.000	N/A	N/A







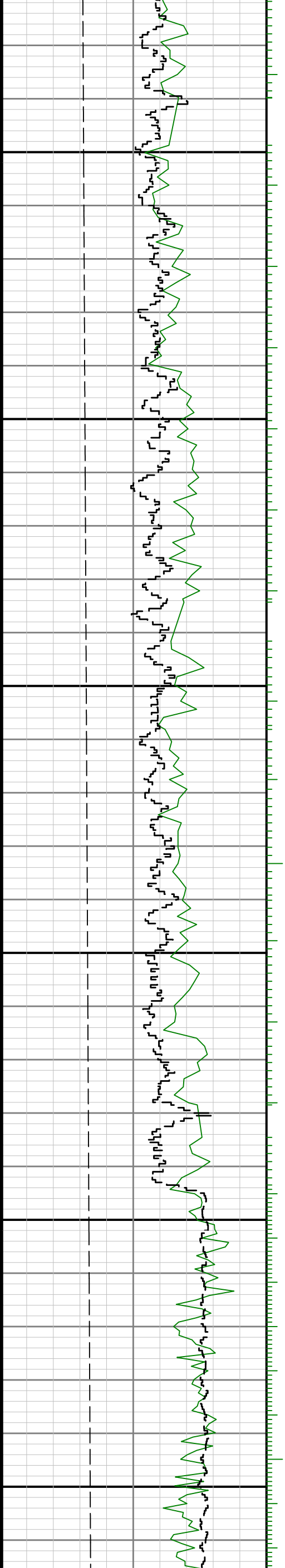


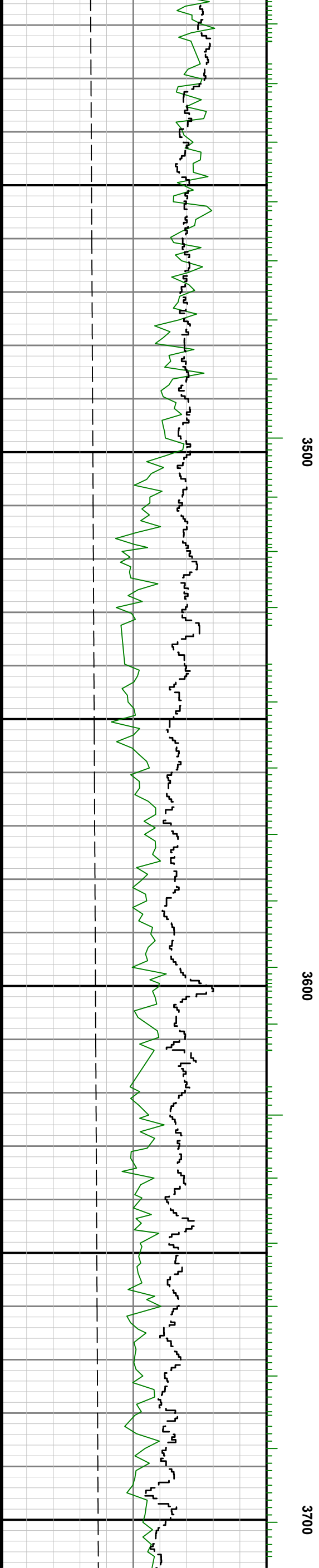
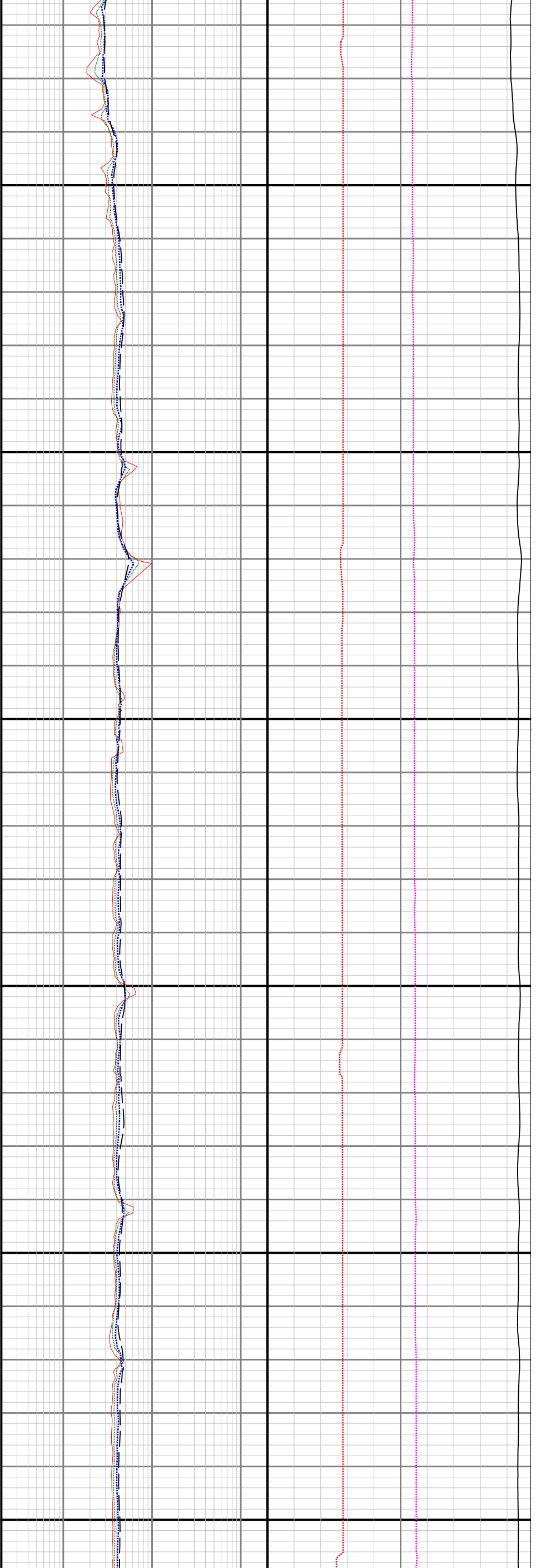


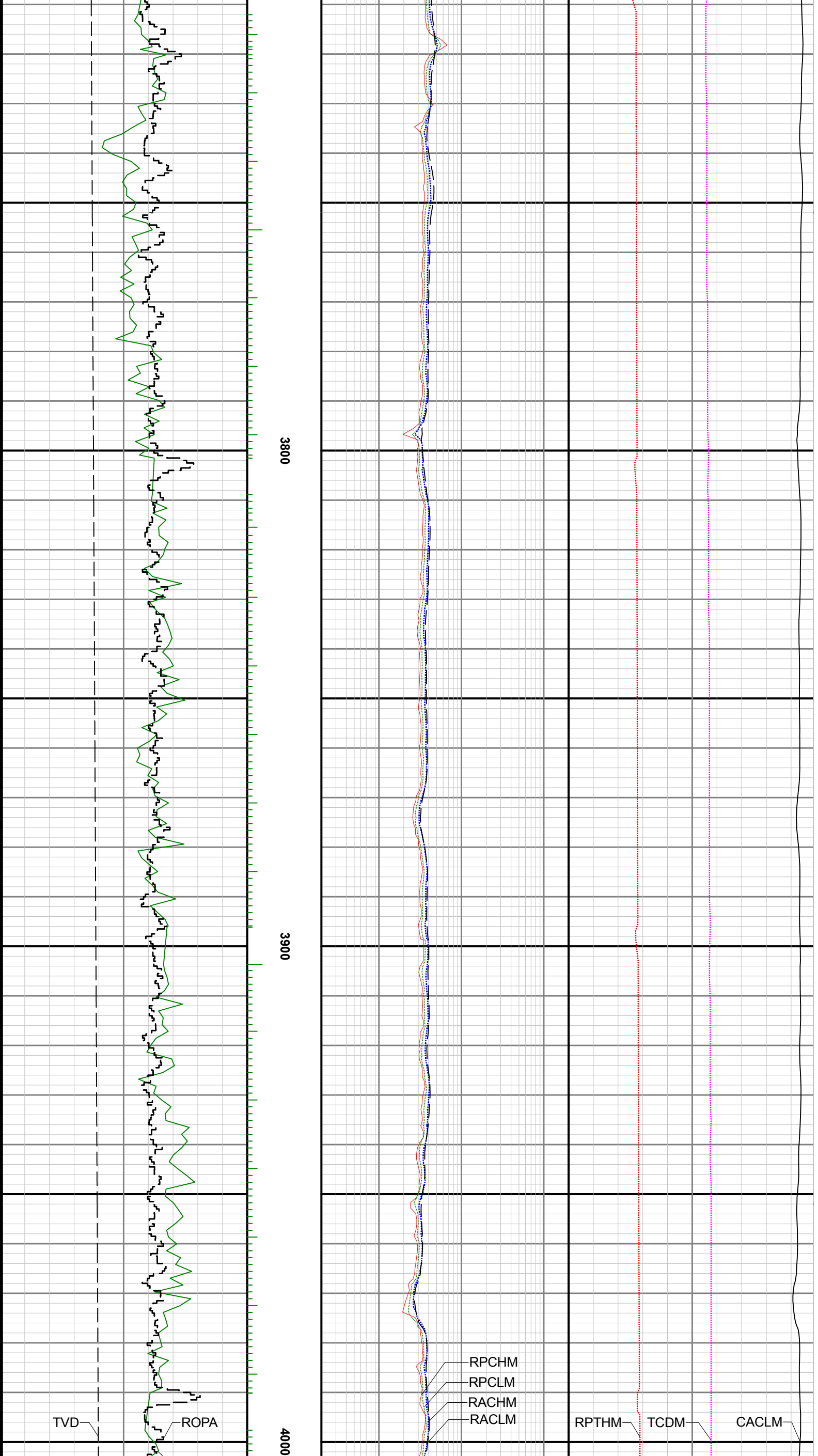
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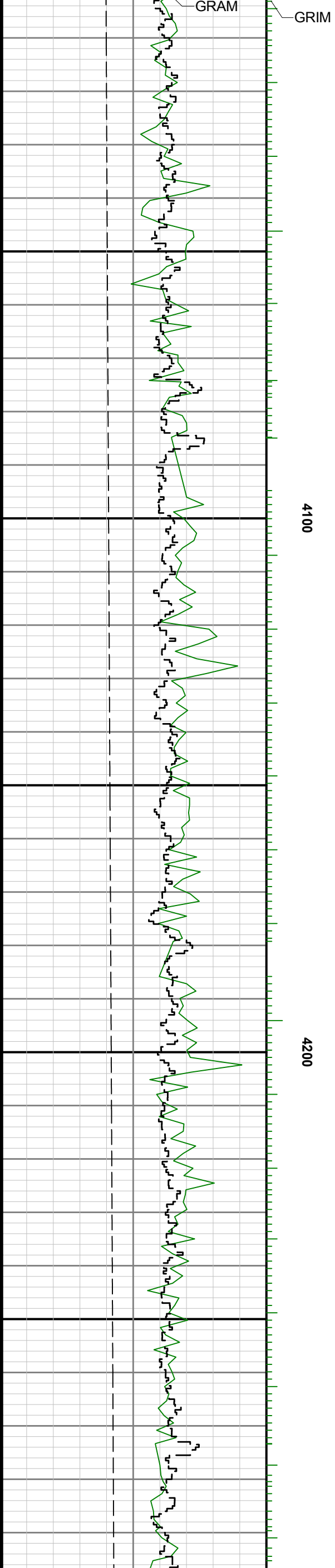
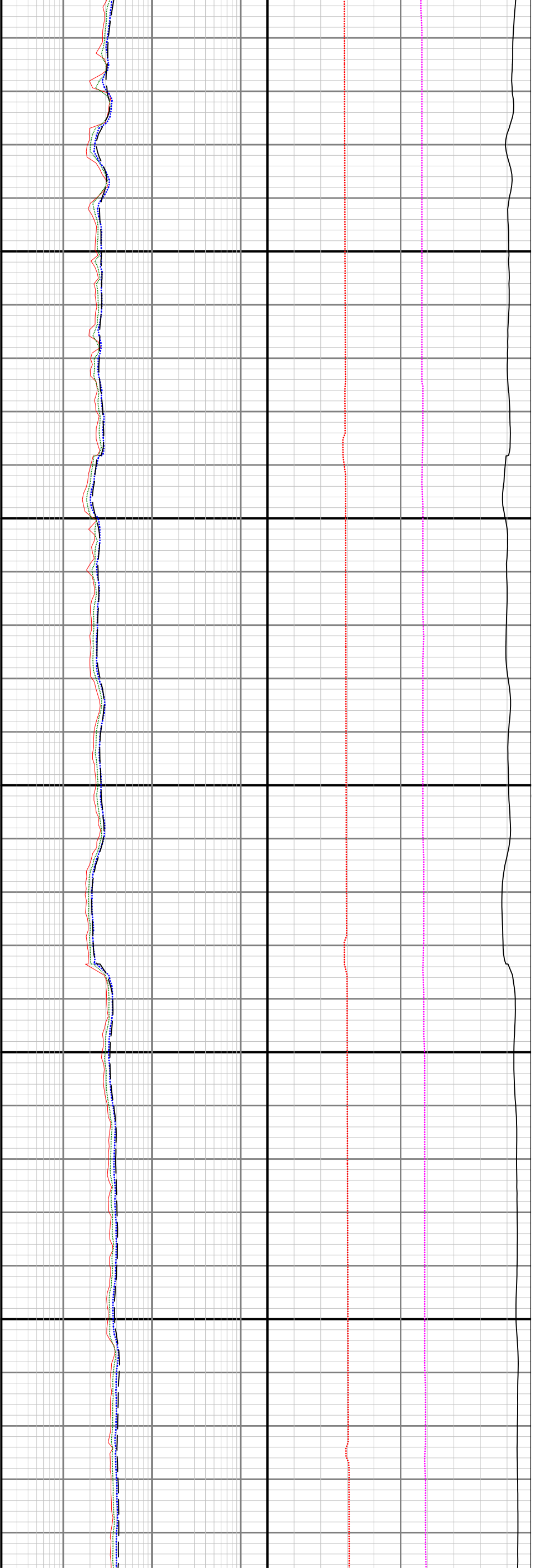
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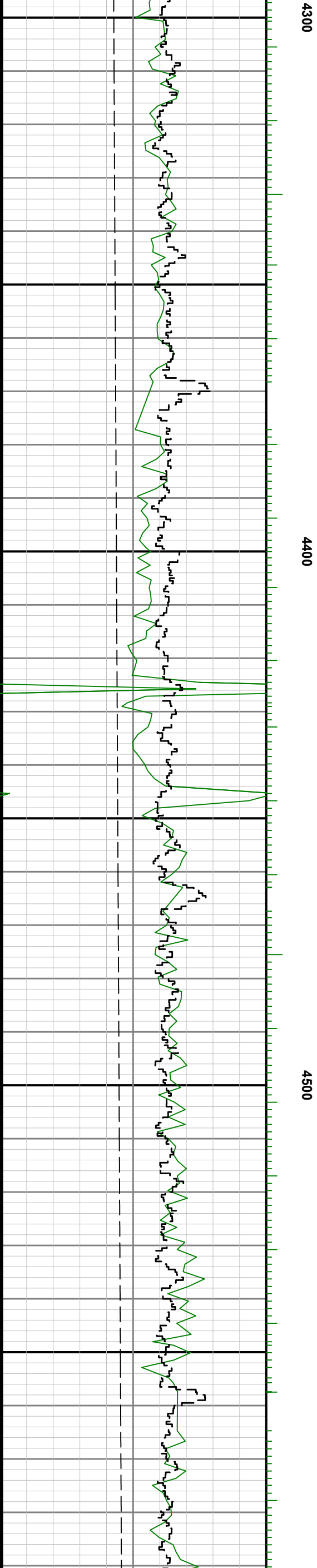
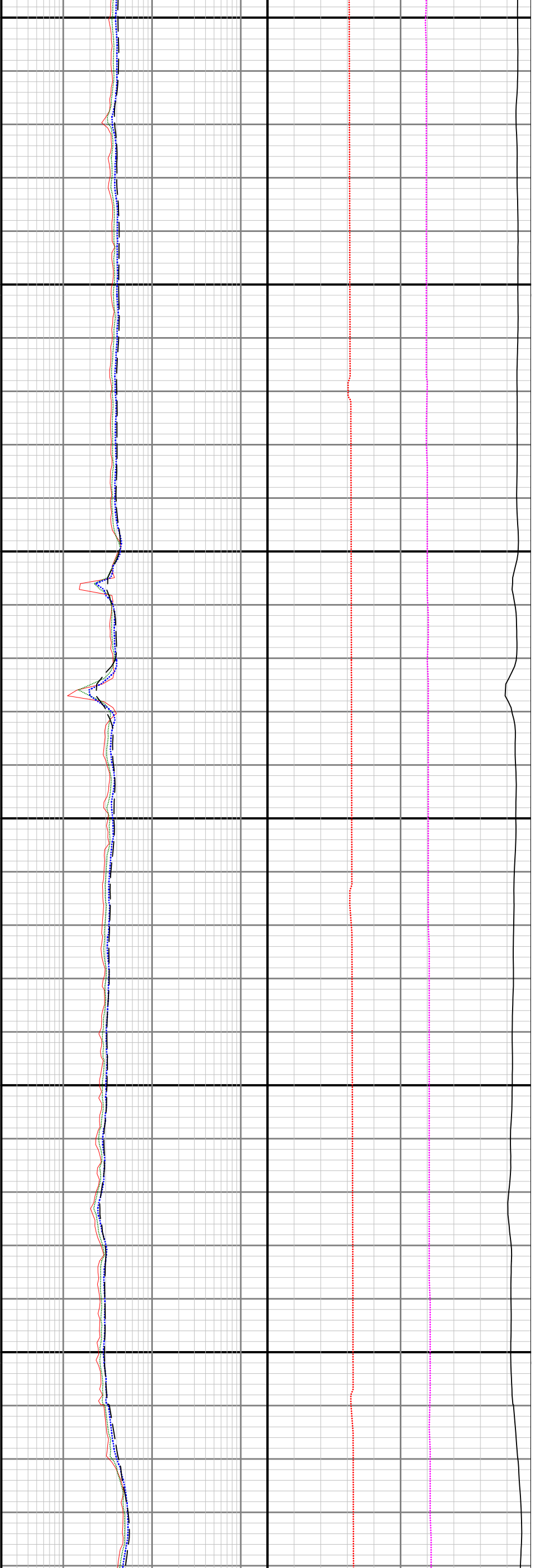
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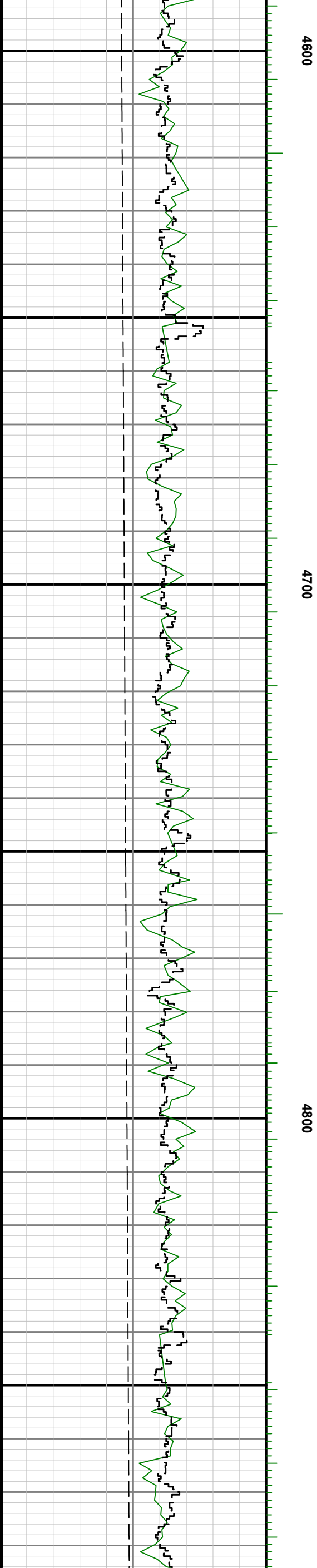
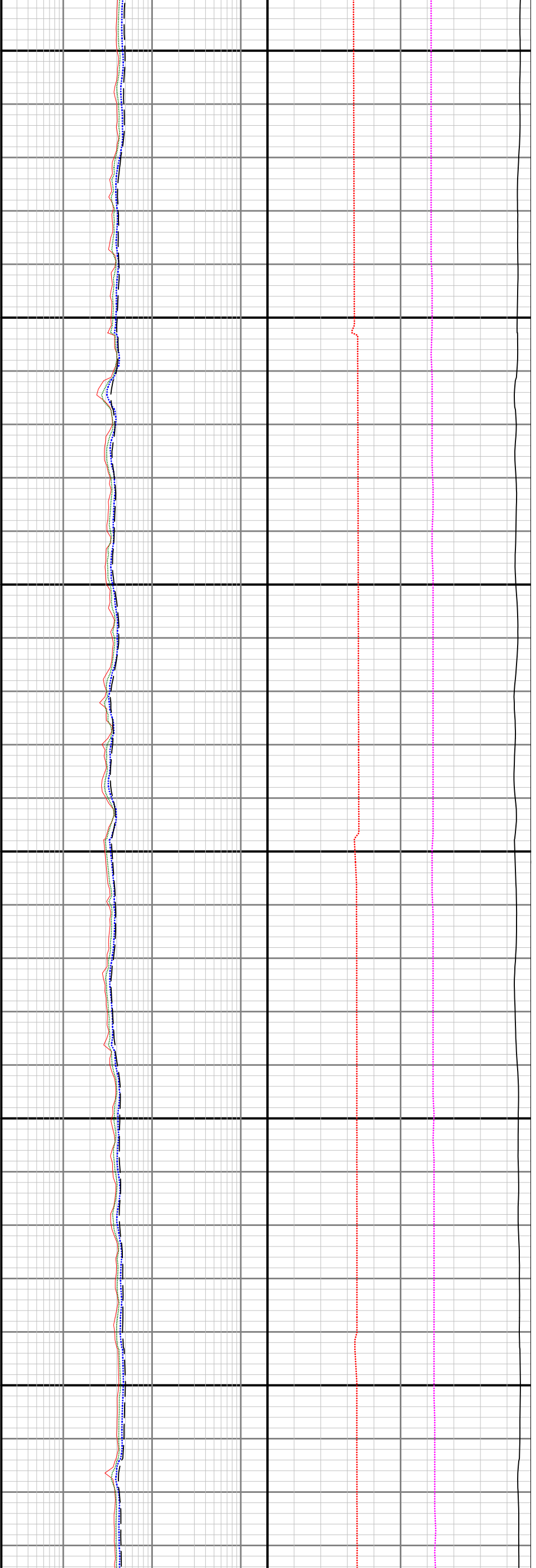


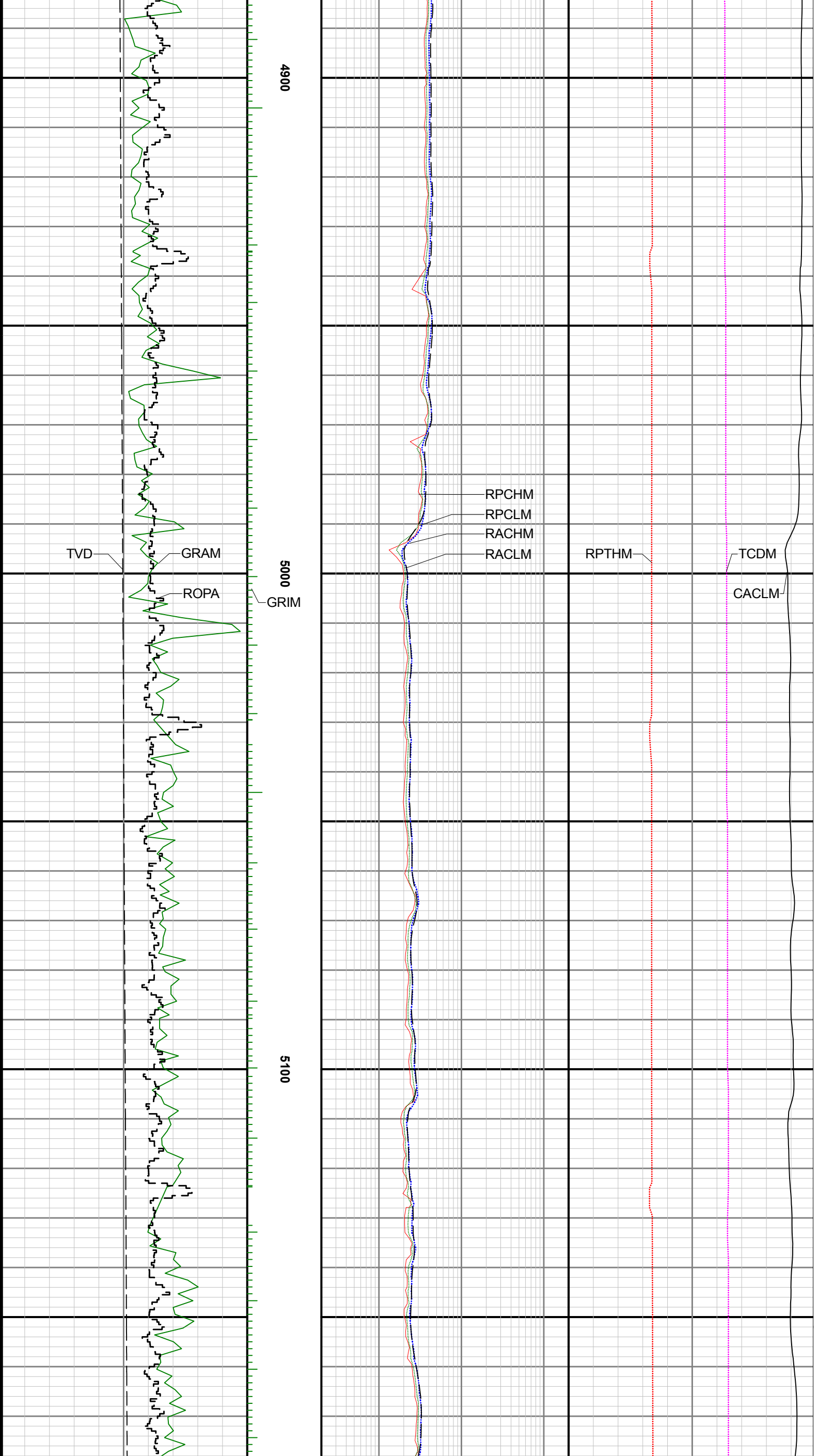


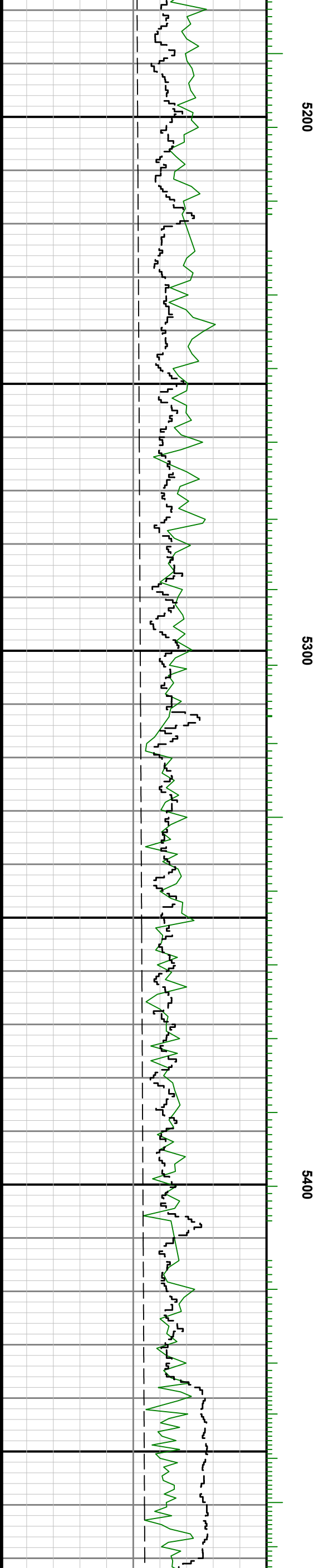
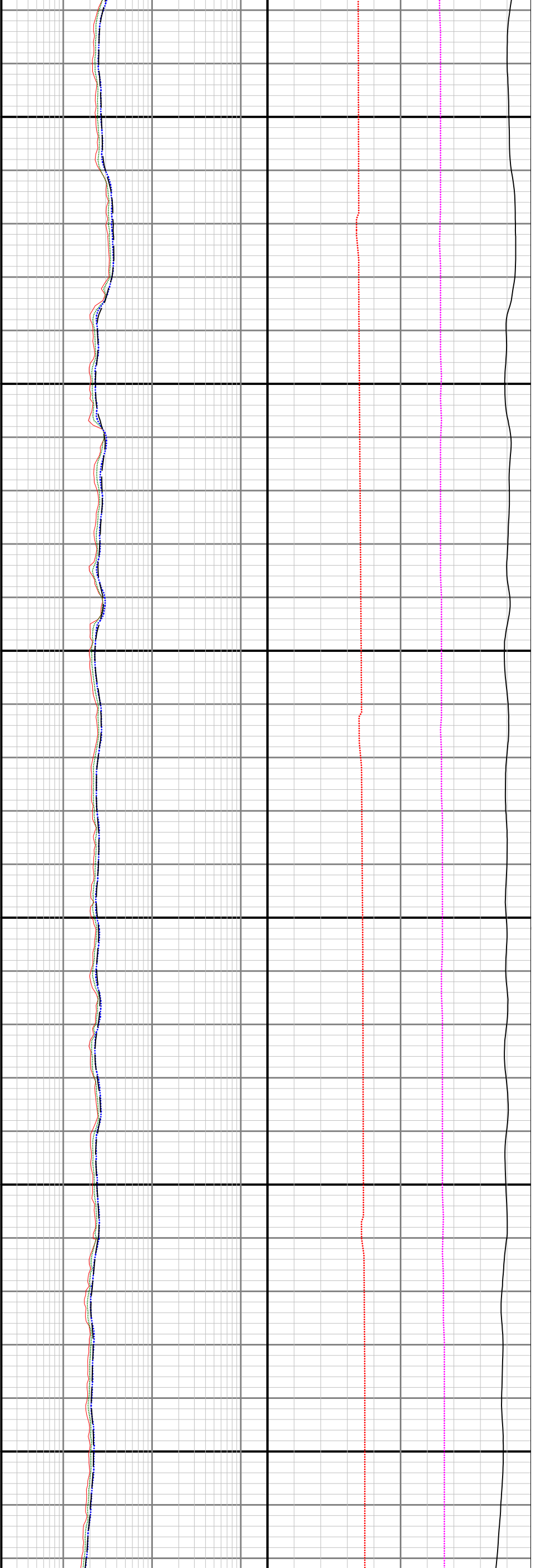


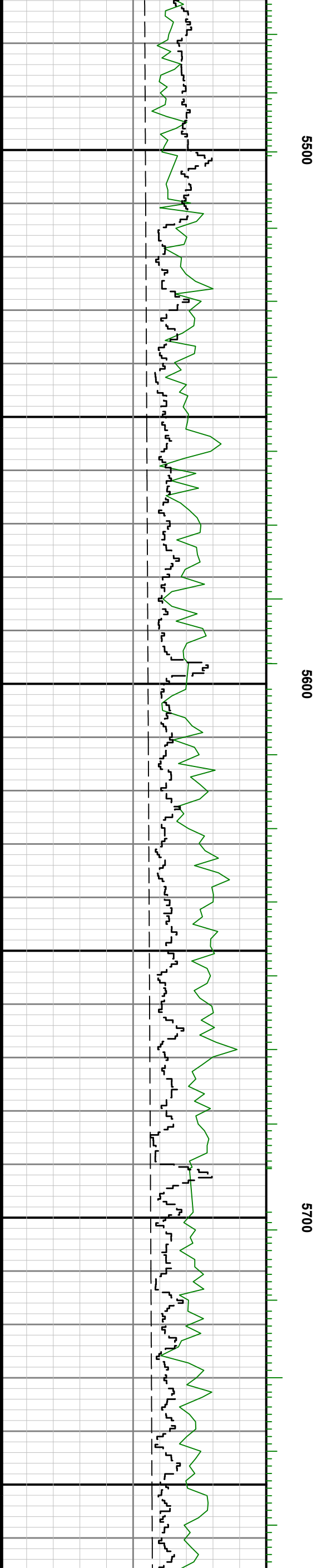
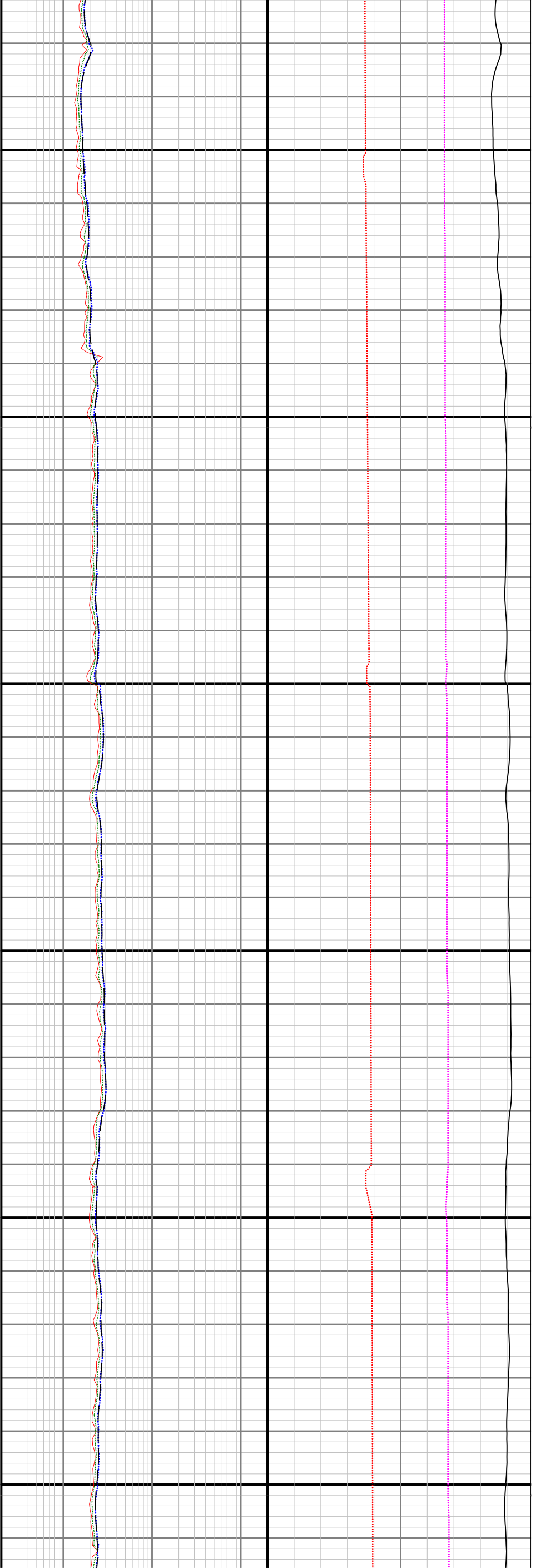


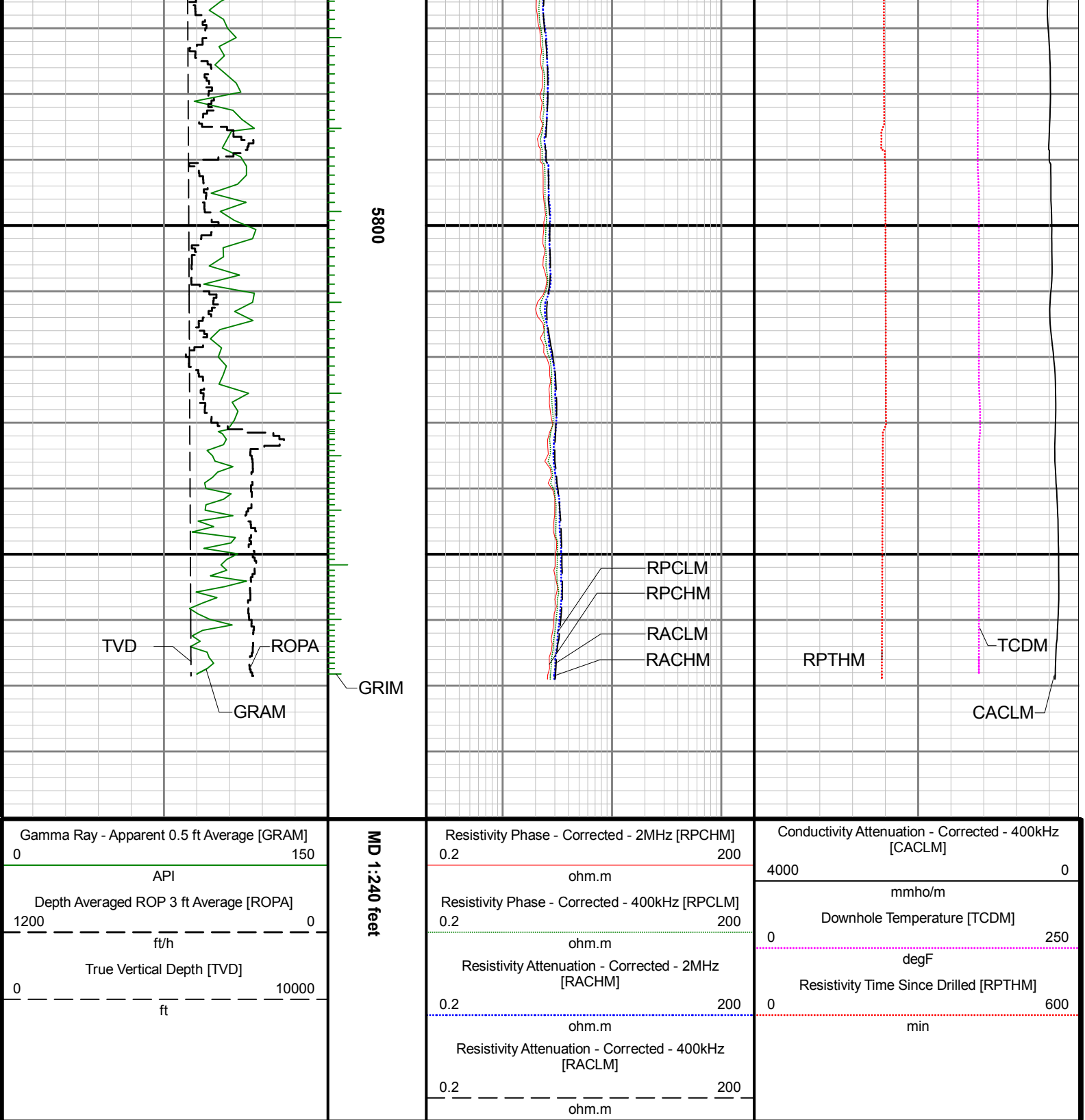












		LWD MEMORY LOG			
		Resistivity Gamma Ray			
Scale:	Company: Noble Energy				
1:240 MD	Well: Wells Ranch AF07-645				
Depth Reference:	Field: Weld County(Noble NAD 83 Grid)				
Driller's Depth	County: Weld		Country: United States		
	State: Colorado				
Status:	Surface Location:			Other Services:	
Final Print	Latitude: 040° 24' 53.856" N Longitude: 104° 20' 18.096" W			Directional	
API: 05-123-44250-00	SEC: 8 TWN: 5N RGE: 62W				
Job ID: 8645411					
Permanent Datum (P.D.): Ground Level			Elevation: 4704.00 ft		Elevations:
Log Measured From: Rig Floor			Interval: 1952.00 - 5870.00		Elev. KB: N/A
			Created: 2017-07-11 10:34:33		Elev. DF: 4734.00 ft
					Elev. GL: 4704.00 ft